

**1999 6.0L (LQ4) C/K-truck
4L80-E TRANSMISSION DIAGNOSTIC PARAMETERS**

99t60U_CK_aT.DOC

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA AND THRESHOLD VALUE(S)	SECONDARY PARAMETERS AND ENABLE CONDITIONS	TIME LENGTH AND FREQUENCY	MIL ILLUMINATION TYPE
Vehicle Speed Sensor - Low Input	P0502	0 RPM to 8192 RPM This DTC detects a low Vehicle Speed when the vehicle has a large input speed in a drive gear range.	Output Speed < 50 RPM	Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0 Gear Range is not Park/Neutral No PSA DTC No TPS DTC's Throttle Position => 10% Engine Torque > 80 and < 400 ft. lbs. No Mass Air Flow DTC's No change in 4WD Lo for => 2.0 sec Input Speed > 1500 RPM No ISS DTC's set Engine Vacuum > 0 & < 105.47 kPA No MAP DTC's	4.0 seconds Continuous	DTC Type B
Vehicle Speed Sensor - Intermittent	P0503	This DTC detects an unrealistic large drop in vehicle speed.	Output Speed drop >1000 RPM	Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0 No Four Wheel Drive Low DTC No PSA change for > 6.0 seconds No PSA DTC Not in Four Wheel Drive Low Max VSS positive skike must be < 250 RPM for < 2.0 sec. (Loop to Loop reads) 4WD LO Switch state change must be > 2.0 seconds.	4.0 seconds Continuous	DTC Type B
Input Speed Sensor - Intermittent/Loss	P0716	0 RPM to 8192 RPM The DTC detects an unrealistically large change in Input Speed	Input Speed loss > 1300 RPM	Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0 No ISS Low DTC No TPS DTC's No VSS DTC's No SSA Sol. DTC's TPS > 10% VSS > 7.0 MPH Test Passed ISS low	4.9 seconds Continuous	DTC Type B

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Input Speed Sensor - Low Input	P0717	0 RPM to 8192 RPM The DTC detects a Low Input Speed when the vehicle has large Vehicle and Engine Speeds	Input Speed < 100 RPM	Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0 No VSS DTC No PSA Sensor DTC's PSA indicating not in P/N VSS > 7.0 MPH	5.0 seconds Continuous	DTC Type B
TCC System Stuck Off	P0741	This DTC detects high torque converter slip when the TCC is commanded on.	TCC Slip is > 140 rpm.	Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0 No ISS DTC's No PSA DTC No TPS DTC's No VSS DTC's No TCC Stuck ON DTC No TCC PWM Electrical DTC's PSA = D4, D3, or D2 Ratio = 2nd, 3rd, or 4th gear Trans Fluid Temp > +20C & < 150.75C TPS => 10% and < 100% TCC Locked On >0.75 seconds No PSA Change > 6 seconds TCC Capacity => 70%	3.5 seconds 5th Occurrence Continuous	DTC Type B

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TCC System Stuck ON	P0742	This DTC detects low torque converter slip when the TCC is commanded off.	TCC Slip is between -10 rpm and +10 rpm.	Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0 No ISS DTC's No PSA DTC No VSS DTC's No TCC Stuck OFF DTC No TCC PWM Electrical DTC No TPS DTC's No MAP DTC's Commanded Gear not = to 1st PSA = D4 Engine Speed between 800 RPM & 4400 RPM Speed Ratio between 0.94 & 1.75 TPS > 12 & < 100% Engine Torque > 120 ft lbs and < 400 ft. lbs. VSS > 7 & < 75 MPH No PSA Change < 6.0 seconds Engine Vacuum > 0 & < 105.47 kPA (Caled Out)	3.5 seconds 5th Occurrence Continuous	DTC Type B

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Shift Solenoid A Performance	P0751	This DTC detects Stuck Off (2-2-3-3 shift pattern) or Stuck On (1-1-4-4 shift pattern)	<p>Stuck OFF Commanded Gear = 1 and Ratio = 2nd > 2.0 sec AND Commanded Gear = 4/ with TCC Locked Ratio = 3rd > 3.5 seconds</p> <p>Stuck ON Commanded Gear = 2 Ratio = 1st > 2.75 seconds.</p>	Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0 No ISS DTC's No PSA DTC No VSS DTC's No TCC Stuck OFF DTC No TCC PWM Electrical DTC No TPS DTC's No MAP DTC's Commanded Gear not = to 1st PSA = D4 TPS > 10.0 & < 100% Engine Torque > 80 ft lbs and < 400 ft. lbs. VSS > 1.5 MPH TFT => 20.25 Deg C No PSA Change < 6.0 seconds Engine Vacuum > 0 & < 105.47 kPA (Caled Out)	<p>Stuck Off: 2nd Occurrence</p> <p>Stuck On: 5th Occurrences</p> <p>Continuous</p>	DTC Type B
Shift Solenoid A Electrical	P0753	0V to 12V This DTC detects a continuous open, short to ground, or short to battery voltage in the SSA circuit or the SSA sensor	Fail Counter > 43 Counts out of 50 Total Counts. (1 count = 100ms)	Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0	Continuous	DTC Type B

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Shift Solenoid B Performance	P0756	This DTC detects Stuck On (4-3-3-4 shift pattern) or Stuck Off (1-2-2-1 shift pattern)	<p>Stuck ON Commanded Gear = First and measured Ratio = 3rd > 3.0 seconds. <u>AND</u> Commanded Gear = Second with measured Ratio = Third > 3.5 seconds.</p> <p>Stuck OFF Commanded Gear = Third with measured Ratio = Second > 4.0 seconds.</p>	<p>Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0 No PSA DTC No TPS DTC No VSS DTC's Not in Four Wheel Drive Low No Four Wheel Drive DTC No Shift Solenoid Electrical DTC No ISS DTC No MAP DTC's No MAF DTC's Vehicle Speed > 2.0MPH TPS > 10.0% Trans Fluid Temp => +20.25 C Engine Torque > 80 < 400 ft. lbs. Engine Vacuum > 0 & < 105.47 kPA (Caled Out)</p>	<p>Stuck On: 2 Occurrences</p> <p>Stuck Off: 7 Occurrences</p> <p>Continuous</p>	DTC Type A
Shift Solenoid B Electrical	P0758	0V to 12V This DTC detects a continuous open, short to ground, or short to battery voltage in the SSB circuit or the SSB sensor	Fail Counter > 43 Counts out of 50 Total Counts. (1 count = 100ms)	Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0	Continuous	DTC Type A

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PSA Circuit Malfunction	P1810	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	Fail Case 1 Illegal Trans Pressure Switch State Fail Case 2 Gear range is D2 after engine startup Fail Case 3 (A) PSA State reads P/N with drive ratio > 1.05 OR (B) PSA State reads Reverse & Ratio is not measured Reverse OR (C) PSA State reads Drive range with Ratio indicating Reverse	Fail Case 1 Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0 Fail Case 2 No VSS DTC's System Voltage > 8.0 and < 18.0 Volts Vehicle Speed < 5.0 MPH Engine Speed Transition: Below 50 RPM for > 0.3 sec. Then, between 50 and 450 RPM > 0.025sec., then > 450 RPM. Fail Case 3 Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0 No TPS DTC's No VSS DTC's No ISS DTC's No PSA DTC No MAP DTC's No Shift Solenoid Electrical or Performance DTC's Vehicle > 5 MPH TPS > 10 % Engine Torque: 80 to 400 ft. lbs. Engine Vacuum > 0 & < 105.47 kPA (Caled Out) (Reverse Ratio = between 2.05 & 2.11)	Fail Case 1 60 seconds Fail Case 2 7 seconds Fail Case 3 3A > 15 sec. 3B > 15 sec. 3C > 7 sec. Continuous	DTC Type B
TCC PWM Solenoid Electrical	P1860	0V to 12V This DTC detects a continuous open, short to ground, or short to battery in the TCC PWM circuit or the TCC PWM sensor	Fail Counter > 43 Counts out of 50 Total Counts (1 count = 100 ms)	Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0	Continuous	DTC Type B

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Transmission Component Slipping	P1870	This DTC detects excessive TCC slip when the torque converter clutch should be engaged.	<p>Fail Case 1 If TCC slip is > 120 rpm and < 550 rpm for 10 seconds, then increment the Trans Slip Counter by one. When the counter equals 3 or greater the diagnostic DTC is set.</p> <p>or</p> <p>Fail Case 2 Fail Case 1 counter => 1 2A) If TCC slip is > 110 rpm and < 550 rpm for 10 seconds, then line pressure is commanded to maxim, then 2B) If TCC slip is > 110 rpm and < 550 rpm for 12.5 seconds, then TCC PWM is commanded Off for 2.0 seconds, 3B) If TCC slip is > 110 rpm and < 550 rpm for 15.0 seconds If the sequence occurs, the diagnostic DTC is set.</p>	<p>Fail Case 1 and 2 Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0 No ISS DTC's No VSS DTC's No TPS DTC's No PSA DTC No TCC Stuck On, Off or Electrical DTC's No Shift Solenoid Electrical or Performance DTC's Shift Sol Perf counters are clear. No MAP DTC's No MAF DTC's PRNDL = D4 Commanded Gear = 4th TPS > 10.0% & < 100% TCC Commanded on > 4.0 sec. TCC at Full Locked Time > 2.5 sec. Trans Fluid Temp > +20 C < +130 C. Engine Torque between 80 & 400 ft. lbs. Engine Speed between 1250 & 5000 RPM Speed Ratio between 1.90 and 0.70 Vehicle Speed between 35 & 110 MPH Engine Vacuum > 0 & < 105.47 kPA (Caled out)</p>	<p>Fail Case 1 10 seconds 3rd Occurrence</p> <p>OR</p> <p>Fail Case 2 2A) 10 seconds 2B) 12.5 seconds 2C) 15 seconds</p> <p>Continuous</p>	DTC Type B

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Four Wheel Drive Low Circuit Performance	P1875	0V to 12V This DTC detects a continuous open or short to ground in the Four Wheel Drive Circuit	<p>Stuck On Any one gear state. 0.96 < (Input Speed Divided by Transfer Case Output Spd) < 1.04</p> <p>Stuck Off Two different commanded gears with 2.68 < (Input Speed Divided by Transfer Case Output Spd) < 2.76</p>	<p>Engine running > 300 RPM > 7.0 sec System Voltage is between 8.0 & 18.0 No TPS DTC's No Shift Solenoid Performance DTC's SSA & SSB Perf Counters are Clear. No PSA DTC No Shift Solenoid Electrical DTC's No TCC PWM Electrical DTC No ISS DTC's No VSS DTC's No MAP DTC's No MAF DTC's PSA = D4 TPS > 10% and < 100% Trans Fluid Temp > +20.25C and < +130C Vehicle Speed > 1.5 MPH Engine Torque > 55 and < 400 ft. lbs. MAP > 0 kpa & < 106 kpa (Caled Out)</p>	<p>Stuck On 2.0 seconds 4th occurrence in any one gear</p> <p>Stuck Off 1.0 second 4th occurrence in 2 different gears</p>	DTC Type B